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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 19629-2025

Replacing GB/T 19629-2005

**Medical electrical equipment - Dosimeters with ionization
chambers and/or semiconductor detectors as used in X-ray
diagnostic imaging**

医用电气设备 X射线诊断影像中使用的电离室和（或）半导体探测器剂量计
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document supersedes GB/T 19629-2005 "Ionization chambers and/or semiconductor detectors used in X-ray diagnostic imaging of medical electrical equipment".

Compared with GB/T 19629-2005, the main technical changes in "Dosimeter Measurement Instruments" are as follows, apart from structural adjustments and editorial modifications.

---The requirements for simulated displays and their compliance tests have been removed (see 4.4.2.2 in the 2005 version);

---The relative inherent error has been removed (see 5.1 in the 2005 edition);

---Reset has been removed (see 5.6 in the 2005 version);

---The leakage current effect has been removed (see 5.7 in the 2005 edition);

---The composite loss has been removed (see 6.2.2 in the 2005 edition);

---The relative inherent error I in attenuated beam measurements has been removed (see Table 3 in the 2005 edition);

---The relative inherent error I in unattenuated beam and breast imaging measurements has been removed (see Table 4 in the 2005 edition);

---The relative inherent error limit for measuring air kerma rate in a weakened beam has been removed (see Figure 1 in the 2005 edition);

---Changed the recovery or other non-functional instructions [see 4.4.5d), 4.4.6 in the 2005

version];

---Linearity has been added (see 5.1);

---The variation limits caused by the influence amount have been changed (see Table 5, Table 7 in the 2005 edition);

---The compliance testing for battery-powered dosimeters has been modified (see 6.5.2, 6.4.2 in the 2005 version);

---The electromagnetic field of the emission has been changed (see 6.9.2, 6.8.1 in the 2005 edition).

This document is equivalent to IEC 61674:2024 "Ionization chambers and/or semiconductors used in X-ray diagnostic imaging for medical electrical equipment".

Detector dosimeter.

The following minimal editorial changes have been made to this document.

---To reflect the actual uncertainty, the "±" before the relative uncertainty values in Table A.1 has been removed.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the National Medical Products Administration.

This document is under the jurisdiction of the National Technical Committee on Standardization of Medical Electrical Appliances (SAC/TC10).

Introduction

The equipment covered in this document is intended for measuring the air kerma and air kerma of the photon radiation field of medical X-ray imaging equipment.

Energy length product or air kerma rate. Medical X-ray imaging equipment includes X-ray radiography equipment, X-ray fluoroscopy equipment, and computed tomography (CT) systems.

The excitation voltage range for generating X-rays in a computed tomography (CT) device is 20kV to 150kV.

Medical electrical equipment used in X-ray diagnostic imaging Ionization chamber and/or semiconductor detector dosimeter

1.1 Scope

This document specifies the performance of diagnostic dosimeters and some performance-related structural requirements.

This document applies to ventilated ionization chambers and/or semiconductor detector dosimeters used in X-ray diagnostic imaging.

1.2 Purpose

The purpose of this document is.

- a) Set the requirements for the diagnostic dosimeter to achieve a satisfactory performance level, and
- b) Standardize the methods for determining whether these performance requirements are met.

This document does not cover the safety requirements for dosimeters. The dosimeters included in this document are not intended for use in a patient environment; therefore, applicable electrical safety requirements do not apply.

All requirements are contained in IEC 61010-1.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 17626.2-2018 Electromagnetic compatibility testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2) 2008, IDT) GB/T 17626.3-2023 Electromagnetic compatibility testing and measurement techniques - Part 3: Radio frequency electromagnetic field radiated immunity testing (IEC) 61000-4-3.2020, IDT) Note. GB/T 5465.2-2023 Graphical symbols for electrical equipment (IEC 60417:2023, IDT) (defined terms) Note. GB/T 17626 (all parts) Electromagnetic compatibility testing and measurement techniques [IEC 61000-4 (all parts)] IEC 61000-4-4 Electromagnetic compatibility - Part 4-4. Test and measurement techniques - Electrical fast transient/burst immunity tests [Elec-transient/burst immunity test] Note. GB/T 17626.4-2018 Electromagnetic compatibility testing and measurement techniques - Electrical fast transient/burst immunity test (IEC 61000-4-4:2012) IDT) IEC 61000-4-6 Electromagnetic compatibility - Part 4-6. Test and measurement techniques - Conducted disturbances immunity induced by radio